NORTH DAKOTA
DEPARTMENT *of* HEALTH

North Dakota Messaging Guide for Syndromic Surveillance

ADT Messages A01, A03, A04 & A08

HL7 Version 2.5.1

(Version 2.3.1 Compatible)

Version 2.0

North Dakota Department of Health, Division of Disease Control

Table of Contents

1 Syndromic Surveillance Message Structure

1.1 Introduction

The North Dakota Department of Health (NDDoH) will use Chief Complaint information from HL7 Admit-Discharge-Transfer (ADT) messages to provide an early warning system of public health emergencies and for general public health surveillance and analysis. The data collection portion of this system is called the North Dakota Syndromic Surveillance (NDSS) System. Only the following types of messages will be accepted:

- ADT^A01 Inpatient Admission
- ADT^A03 Inpatient Discharge
- ADT^A04 Outpatient/Emergency Department Registration
- ADT^A08 Updates to information on previously sent A01, A03 and A04 messages

This implementation guide is based on standard HL7 version 2.5.1 with further constraints specifically for syndromic surveillance requirements. For more information on HL7, go to http://www.hl7.org.

1.2 How to Use this Guide

There are currently two versions of standard specifications for sending syndromic surveillance messages to the North Dakota Department of Health. Both Implementation Guides are within this document.

- HL7 Version 2.5.1
- HL7 Version 2.3.1

1.3 Basic HL7 Terms

Table 1.3: Basic HL7 Terms

Term	Definition
Message	A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a defined sequence, with a message type and a trigger event.
Segment	A segment is a logical grouping of data fields. Segments within a defined message may be required or optional, and may occur only once or may be allowed to repeat. Each segment is named and is identified by a segment ID, a unique three-character code.
Field	A field is a string of characters. Each field has an element name. Each field is identified by the segment it is in and its sequence within the segment. Usage and cardinality requirements are defined in the Segment Definitions.
Component	A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components necessarily are required to be populated.
Data Type	A data type restricts the contents and format of the data field. Data types are given a two- or three-letter code. Some data types are coded or composite types with several components. The applicable HL7 data type is listed in each field definition.
Delimiters	The delimiter values are defined in MSH-1 and MSH-2 and are used throughout the message. The default delimiters are: | - Field Separator ^ - Component Separator & - Sub-Component Separator ~ - Repetition Separator \ - Escape Character

1.4 Data Types for Syndromic Surveillance Implementation Guide

The HL7 Standards define a large number of data types for use in HL7 messaging. Not all of these data types are required for the messages defined in this guide. Those that are used in this guide are defined in the table below and specified further.

Table 1.4: Data Types Utilized in Syndromic Surveillance

Data Type	Data Type Name
CE	Coded Element
CWE	Coded with Exceptions
CX	Extended Composite ID with Check Digit
DTM	Date/Time
EI	Entity Identifier
FN	Family Name
HD	Hierarchic Designator
ID	Coded Value for HL7-defined Tables
IS	Coded Value for User-defined Tables
MSG	Message Type
NM	Numeric
PL	Person Location
PT	Processing Type
SI	Sequence Identifier
ST	String Data
TX[1]	Text Data
TS	Timestamp
VID	Version Identifier
XAD	Extended Address
XPN	Extended Person Name

1.5 Encoding Rules

The following list details the encoding rules.

- Encode each segment in the order specified in the Message Structure.
- Begin each segment with the three-letter segment ID (e.g., PID).
- End each segment with the carriage return terminator (hex 0D). Note that in the examples in this guide, this character is illustrated as "<cr>." This character is a single ASCII character; the segment terminator is NOT the four-character sequence.
- Encode the data fields in the sequence given in the corresponding segment definition tables.
- Encode each data field according to the data type format listed in this guide.
- Components, subcomponents or repetitions that are not valued at the end of a field need not be represented by component separators. Likewise, field separators are not required for empty fields at the end of a segment. For example, the data fields and segments below are equivalent:

  |^XXX&YYY&&^| is equal to |^XXX&YYY|

  |ABC^DEF^^| is equal to |ABC^DEF|

  and

MSH|^~\&||Facillity_NPI^0131191934^NPI|||201009221330||
ADT^A04^ADT_A011|P|2.3.1|||||||<cr>
MSH|^~\&||Facillity_NPI^0131191934^NPI|||201009221330||
ADT^A04^ADT_A01|1|P|2.5.1|||||||<cr>

is equal to

MSH|^~\&||Facility_NPI^0131191934^NPI|||201009221330|| ADT^A04^ADT_A01|1|P|2.3.1<cr>
MSH|^~\&||Facility_NPI^0131191934^NPI|||201009221330|| ADT^A04^ADT_A01|1|P|2.5.1<cr>

- If a data segment is not documented in this guide, the sender should not send the segment. However, if the segment is sent and the segment conforms to HL7 message structure for the message, the receiver should ignore the undocumented segment. This "extraneous" data (segment) is best negotiated prior to transmission between the sender and receiver.

1.6 NDSS Message Structure

1.6.1 HL7 Message Structure Attributes

The structure of the supported messages in this guide are described in tabular format (refer to the following section). The columns of those tables are used to describe the table below.

Table 1.6.1 NDSS Message Structure Attributes

Abbreviation	Definition	
Segment	Three-character code for the segment and the abstract syntax (e.g., the square and curly braces). If a segment is not documented in this guide, it should not be sent. • [XXX] Optional • { XXX } Repeating • XXX Required • [{ XXX }] Optional and Repeating	
Name	Name of the segment	
Description	Explanation of the use of the segment	
Usage	Use of the segment for Syndromic Surveillance. Indicates if the segment is required, optional or conditional in a message.	
	R	Required. Segment must be sent with fields populated according to the segment definition. Must always be populated.
	RE	Required, but may be empty (segment is not sent). If the Sender has data, it must be sent. The Receiver must be capable of processing data if sent and must not raise an error or warning if the data is not sent.
	O	Optional. There are no specified conformance rules for either Sender or Receiver for this segment in this guide. As and implemented interface must follow known rules for populating segments, a specific interface for a particular Sender or Receiver must constrain this usage to either " R, RE, C, CE or X". This has been deliberately left unconstrained in this guide to support differing and sometimes mutually exclusive statutory requirements in different jurisdictions.
Cardinality	Defines the minimum and maximum number of times the segment may appear in the message.	
	[0..1]	Segment may be omitted and can have, at most, one occurrence.
	[1..1]	Segment must have exactly one occurrence.
	[0..*]	Segment may be omitted or may repeat an unlimited number of times.
	[1..*]	Segment must appear at least once, and may repeat an unlimited number of times.

1.6.2 Constrained Message Types

The following HL7 ADT Messages have been identified for Syndromic Surveillance reporting:

- ADT^A01 Admit / Visit Notification
- ACK^A01 General Acknowledgement
- ADT^A03 Discharge / End Visit
- ACK^A03 General Acknowledgement
- ADT^A04 Register a Patient
- ACK^A04 General Acknowledgement
- ADT^A08 Update Patient Information
- ACK^A08 General Acknowledgement

Message types that are NOT documented in this guide are considered NOT SUPPORTED.

The HL7 message formats sent to public health agencies will be constrained versions of the 2.5.1 abstract message (with backward compatibility to 2.3.1) formats. Only the segments necessary for carrying the Syndromic data, and certain structural message segments, are included. Because the message structure for the message types is similar, one table (Table 1.6.3) was used to define the message structure for the ADT A01, A04 and A08 messages. Another table (Table 1.6.4) was used for the A03 message structure, as per the HL7 Standard.

1.6.3 Constrained Message Structure: ADT^A01, ADT^A04 & ADT^A08

The abbreviated terms and their definitions used to describe the Message Profile are detailed in the following tables.

Table 1.6.3: Simple Message Structure: A01, A04 & A08

Segment	Name	Description	Usage	Cardinality
MSH	Message Header	Information explaining how to parse and process the message. Information includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
EVN	Event Type	Trigger event information for receiving application.	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information.	R	[1..1]
PV1	Patient Visit	Information related to this visit at this facility including the nature of the visit, critical timing information and a unique visit identifier.	R	[1..1]
[PV2]*	Patient Visit Additional Information	*Admit Reason / Chief Complaint information. PV2 is optional if a DG1 segment is sent. If no DG1 segment is sent, the PV2 segment is required	R/O*	[0..1]
{OBX}	Observation / Result	Information regarding age, temperature and other information.	RE	[1..*]
{DG1}	Diagnosis	Admitting diagnosis and, optionally, working and final diagnosis information.	RE	[0..*]
{PR1}	Procedures	Information relative to various types of procedures performed.	RE	[0..*]
[{IN1}]	Insurance	Information about insurance policy coverage information.	O	[0..*]

1.6.4 Constrained Message Structure ADT^A03

Table 1.6.4: Simple Message Structure: A03				
Segment	**Name**	**Description**	**Usage**	**Cardinality**
MSH	Message Header	Information explaining how to parse and process the message. Information includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
EVN	Event Type	Trigger event information for receiving application.	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information.	R	[1..1]
PV1	Patient Visit	Information related to this visit at this facility including the nature of the visit, critical timing information and a unique visit identifier.	R	[1..1]
[PV2]*	Patient Visit Additional Information	*Admit Reason / Chief Complaint information. PV2 is optional if a DG1 segment is sent. If no DG1 segment is sent, the PV2 segment is required	R/O*	[0..1]
{OBX}	Observation / Result	Information regarding age, temperature and other information.	RE	[1..*]
{DG1}	Diagnosis	Admitting diagnosis and, optionally, working and final diagnosis information.	RE	[0..*]
{PR1}	Procedures	Information relative to various types of procedures performed.	RE	[0..*]
[{IN1}]	Insurance	Information about insurance policy coverage information.	O	[0..*]

1.6.5 Constrained Message Structure ACK

NOTE: The same Message Structure is used for ACK^A01, ACK^A03, ACK^A04, ACK^A08. See Appendix B for more information on the Message Header Segment for the ACK.

Table 1.6.5: Simple Message Structure: ACK				
Segment	**Name**	**Description**	**Usage**	**Cardinality**
MSH	Message Header	Information explaining how to parse and process the message. Information includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
MSA	Event Type	Acknowledgement information identifying the ability of a receiver to accept a message transmitted.	R	[1..1]

2. Syndromic Surveillance Attributes & Definitions

2.1 Syndromic Surveillance Segment Attributes

Fields or components that are NOT documented in this guide are considered NOT SUPPORTED. Inclusion of any field or component that is not supported should not result in failure of the entire message by the receiver, as per recommended receiver behaviors as defined in HL7.

The abbreviated terms and segment definitions used in the constrained message formats are detailed in the following table.

Table 2.1: Syndromic Surveillance Segment Attributes

Attribute	Definition
Field Name	Descriptive name of the data element.
Sequence (Seq)	Sequence of the elements as they are numbered in the HL7 segment.
Data Type (DT)	Data type used for HL7 element.
Length (Len)	Length of an element is calculated using the following rules: *Field length* = (Sum of all supported component lengths) + (component number of the last-supported component) – 1. *Component length* = (Sum of all supported sub-component lengths) + (sub-component number of the last-supported component) – 1.
Sender Usage Receiver Usage	• Indicator of whether a data element is required, optional or conditional in a message; set separately for senders and receivers. Legal values are: • R - Required. Must always be populated by the sender, and if not present the receiver may reject the message. • RE[2] - Required, but may be empty (no value). If the sender has data, the data must be sent. The receiver must be capable of processing data if sent, and must not raise an error or warning if the data is not sent. • O – Optional. There are no specified conformance rules for either sender or receiver for this field in this guide. As an implemented interface must follow known rules for populated fields and components, a specific interface for a particular sender or receiver must constrain this usage to either R, RE, C, CE or X. This value has been deliberately left unconstrained in this guide to support differing and sometimes mutually exclusive statutory requirements in different jurisdictions. This must be determined locally. • C – Conditional. When conditionality predicate evaluates to "True," considered the same as "R." When condition evaluates to "False," senders must not populate the field, and receivers may raise an error if the field is present but must not raise an error if the field is not present. • Syndromic Surveillance - When conditionality predicate evaluates to "True," behaves the same as "RE." When conditionality predicate evaluates to "False," the sender should not populate the field, and the receiver may raise an application error if the field is present. **Note:** A required field in an optional segment does not mean the segment must be present in the message. It means that if the segment is present, the required fields within that segment must be populated. The same applies to required components of optional fields. If the field is being populated, then the required components must be populated. The same applies to required sub-components of optional components. If a component is being populated, then the required sub-components of that component must be populated.
Cardinality	Minimum and maximum number of times the field may appear. • [0..0] Field never present • [0..1] Field may be omitted and can have, at most, one occurrence

[2] The element may be missing from the message, but must be sent by sending application if there is relevant data. A conforming sending application must be capable of providing all "RE" elements. If conforming sending application knows required values for the element, it must send that element. If conforming sending application does not know the required values, then that element will be omitted.

	• [1..1] Field must have exactly one occurrence • [0..n] Field may be omitted or may repeat up to *n* times • [1..n] Field must appear at least once, and may repeat up to *n* time • [0..*] Field may be omitted or repeat an unlimited number of times • [1..*] Field must appear at least once, and may repeat unlimited number of times • [m..n] Field must appear at least *m* and at most *n* times
Values / Value Set	Link to value set or literal value of data expected to be populated in the field. Numbers in this field denote the related vocabulary in that HL7 Table. Contains the name and/or the PHIN Value Set (accessible through PHIN VADS) when relevant, as well as notes, condition rules (2.5.1 vs. 2.3.1) and recommendations. http://phinvads.cdc.gov/vads/ViewView.action?id=66DF940F-BF15-E011-87A0-00188B39829B#

3 NDSS HL7 Version 2.5.1 Message Segment Definition

3.1 Version 2.5.1 Message Structure and Definitions

The NDSS HL7 Version 2.5.1 contains the following segments:

MSH: Message Header Segment Definition
EVN: Event Type Segment Definition
PID: Patient Identification Segment Definition
PV1: Patient Visit Segment Definition
PV2: Patient Visit Additional Information Segment Definition
OBX: Observation/Result Segment Definition
DG1: Diagnosis Segment Definition
PR1: Procedures Segment Definition
IN1: Insurance Segment Definition

3.1.1 MSH: Message Header Segment Definition

The MSH Segment is used to define the intent, source and destination and some specifics of the syntax of the message. This segment includes identification of the message delimiters, sender, receiver, message type, timestamp, etc.

Example:

MSH|^~\&|ADMITAPP|MYCITY GENL HOSP^0133199346^NPI|NDSS|NDDOH|201009171830||ADT^A04|201009171830_0268|P|2.5.1<cr>

Table 3.1.1: Message Header Segment Definition

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values/Value Set
Field Separator	1	ST	1	R	R	[1..1]	MSH-1 (Field Separator). SHALL have the Literal Value of '|'
Encoding Characters	2	ST	4	R	R	[1..1]	MSH-2 (Encoding Characters) SHALL have the Literal Value of "^~\&"
Sending Application	3	HD	227	O	O	[0..1]	Identifies the sending application from the other HL7 message exchange applications belonging to the sender. Hospitals frequently send the name of their software vendor or an internally developed system here. Ex: MYEMR-2000
Sending Facility	4	HD	227	R	R	[1..1]	Field that uniquely identifies the facility associated with the application that sends the message.
Namespace ID	4.1	IS	20	RE	RE	[0..1]	Name of originating hospital. NDSS suggests that a shortened name, abbreviation or acronym be used in the first component. Ex. LOCAL GENL HOSP
Universal ID	4.2	ST	199	R	R	[1..1]	Unique identifier for the sending facility. The supported value is the ten-digit National Provider ID.
Universal ID Type	4.3	ID	6	R	R	[1..1]	Code system for the universal identifier. If MSH-4.2 contains a National Provider ID, use literal: "NPI."
Receiving Application	5	HD	227	O	O	[0..1]	Unique identifier for the receiving application. Literal value: "NDSS."
Receiving Facility	6	HD	227	O	O	[0..1]	Unique identifier for the receiving application. Literal value: "NDDOH."
Date/Time Of Message	7	TS	26	R	R	[1..1]	**Note:** MSH-7 (Date/Time of Message) SHALL be expressed with a minimum precision of the nearest minute, and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'. Ex: 20111209143807
Message Type	9	MSG	15	R	R	[1..1]	**Note:** MSH-9 (Message Type) SHALL be constrained to be a value in the set ('ADT^A01^ADT_A01', 'ADT^A03^ADT_A03'', 'ADT^A04^ADT_A01'', 'ADT^A08^ADT_A01'').

Message Code	9.1	ID	3	R	R	[1..1]	
Trigger Event	9.2	ID	3	R	R	[1..1]	
Message Control ID	10	ST	199	R	R	[1..1]	**Note:** A number or other identifier that uniquely identifies the message and is echoed back in the message acknowledgment segment (MSA). Some hospitals send a Date/Time stamp using microsecond precision or a Date/Time stamp using minute precision plus a sequence number that restarts each day at one or wraps around when it reaches all 9's. Ex: 20101128070123463 or 8X34562 or 201011280701_01234
Processing ID	11	PT	3	R	R	[1..1]	**Note:** MSH-11 (Processing ID) SHALL have a value in the set of literal values ('P, 'D, 'T'). PHVS_ProcessingID_HL7_2x
Version ID	12	VID	5	R	R	[1..1]	**Note:** MSH-12 (Version ID) SHALL have the Literal Value of '2.5.1'.

3.1.2 EVN: Event Type Segment Definition

The EVN segment is used to communicate trigger event information to receiving applications.

Example:

EVN||20101128124

Table 3.1.2: Event Type Segment Definition

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values/Value Set
Event Type Code	1	ID	3	X	X	[0..0]	
Recorded Date/Time	2	TS	26	R	R	[1..1]	**Note:** EVN-2 (Recorded Date/Time of Message) SHALL be expressed with a minimum precision of the nearest minute, and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'. Ex: 20111209143807
Event Facility	7	HD	41	R	R	[1..1]	Required, if using HL7 version 2.5.1 For HL7 version 2.3.1, use an OBX segment with a HD data type. **Note:** This is the location where the patient was actually treated.
Namespace ID	7.1	IS	20	RE	RE	[0..1]	Name of originating facility
Universal ID	7.2	ST	199	R	R	[1..1]	National Provider Identifier. (10-digit identifier) **Note:** The use of 'NPI' should be discussed during the implementation process as local jurisdictions may differ on their use of identifiers for this field
Universal ID Type	7.3	ID	6	R	R	[1..1]	Expecting Value "NPI"

3.1.3 PID: Patient Identification Segment Definition

The PID segment is used as the primary means of communicating patient identification information. This segment contains patient identifying and demographic information that does not change frequently.

Example:

PID|1||MD01059711^^^ADMITTING^MR^MID-CO HLTH CTR^9876543210^NPI||~^^^^^^U||19850615|M||2106-3^White^CDCREC|^^^^^ND^58503^USA^015||||||||||2135-2^Hispanic or Latino^CDCREC<cr>

Table 3.1.3: Patient Identification Segment Definition

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values/Value Set
Set ID - PID	1	SI	4	O	RE	[0..1]	**Note:** PID-1 (Set ID) SHALL have the Literal Value of '1'
Patient Identifier List	3	CX	478	R	R	[1..*]	PID-3 is a repeating field that can accommodate multiple patient identifiers**.** **Note:** Patient's unique identifier(s) from the facility that is submitting this report to public health officials. Different jurisdictions use different identifiers and may often use a combination of identifiers to produce a unique patient identifier. Patient identifiers should be strong enough to remain a unique identifier across different data provider models, such as a networked data provider or State HIE.
ID Number	3.1	ST	15	R	R	[1..1]	**Note:** A unique patient identifier is required (such as patient account number or MPI number). In addition, it is strongly recommended to submit the patient medical record number to facilitate identification of the patient in the event of a required follow-up investigation. Without it, the work required to follow up on the data provider is greatly increased.
Patient Name	5	XPN	294	R	R	[1..*]	**Note:** Syndromic Surveillance does not require the patient name. The Patient ID number will be used to uniquely identify the patient. HL7 does require the patient name field for a PID segment. The patient name field must still be populated even when reporting de-identified data. The first field name contains the primary or legal name of the patient. Therefore, the name type code (PID.5.7) should be "L"(Legal), when populated. When the name of the patient is known, but not desired to be sent, HL7 recommends the following: |~^^^^^^S|. The "S" for the name type code (PID.5.7) in the second name field indicates that it is a pseudonym. When the name of the patient is not known, HL7 recommends the following: |~^^^^^^U|. The "U" for the name type code (PID.5.7) in the second name field indicates that it is unspecified.

Family Name	5.1	FN	194	O	RE	[0..1]	
Given Name	5.2	ST	30	O	RE	[0..1]	
Second Given Name or Initials	5.3	ST	30	O	RE	[0..1]	
Suffix	5.4	ST	20	O	RE	[0..1]	
Prefix	5.5	ST	20	O	RE	[0..1]	
Degree	5.6	IS	6	O	RE	[0..0]	
Name Type Code	5.7	ID	1	R	R	[0..1]	Expected Values: "L" (Legal) – used for patient legal name. "S" (Pseudonym) – used for de-identification of patient name. "U" (Unspecified) – used when patient name is not known.
Date/Time of Birth	7	TS	26	RE	RE	[0..1]	Patient's date of birth. YYYYMMDD[HH[MI[SS[.S[S[S[S]]]]]]] [+/-ZZZZ] Preferred precision is to the nearest day. Time components may be sent if they are known. The Greenwich Mean Time offset is not required. Ex: 19580704 or 200409081426
Administrative Sex	8	IS	1	RE	RE	[0..1]	PHVS_AdministrativeSex_HL7_2x
Race	10	CE	478	RE	RE	[0..*]	PHVS_RaceCategory_CDC
Identifier	10.1	ST	20	RE	RE	[0..1]	**Note:** Standardized code for patient race category
Text	10.2	ST	199	O	RE	[0..1]	**Note:** Standardized description associated with code in PID-10.1
Name of Coding System	10.3	ID	20	C	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 1.
Patient Address	11	XAD	513	RE	RE	[0..1]	Primary residence address of the patient. No repetitions. Ex:|123 W MAIN ST - APT 234^^JEFFERSON CITY ^MO^65109-1234^USA| |123 PARTY COVE ST^APT G^OSAGE BEACH ^MO^65065^USA^^^029| USPS format for street address. Other designation (e.g. "Apt 312"), city, state and zip are preferred.
Street Address	11.1	SAD	184	O	O	[0..1]	First line of the patient's home address.
Other Designation	11.2	ST	120	O	O	[0..1]	Second line of the street address or Post Office box.
City	11.3	ST	50	O	O	[0..1]	City portion of the patient's home address.
State or Province	11.4	ST	50	RE	RE	[0..1]	Two-character postal abbreviation for the state portion of patient's home address. Ex. ND, SD, MN
ZIP or Postal Code	11.5	ST	12	RE	RE	[0..1]	USPS Postal code
Country	11.6	ID	3	O	O	[0..1]	PHVS_Country_ISO_3166-1
Address Type	11.7	ID	3	O	O	[0..1]	Expecting value: "C"
Other Geographic Designation	11.8	ST	50	O	O	[0..1]	
County/Parish Code	11.9	IS	20	O	O	[0..1]	Three-digit county FIPS county in which the patient resides. See Appendix B — County. Ex. Adams = 001.

Ethnic Group	22	CE	478	RE	RE	[0..*]	PHVS_EthnicityGroup_CDC
Identifier	22.1	ST	20	RE	RE	[1..1]	**Note:** Standardized code for patient ethnic group.
Text	22.2	ST	199	O	O	[0..1]	**Note:** Standardized description associated with code in PID-22.1.
Name of Coding System	22.3	ID	20	C	C	[0..1]	**Condition Rule:** Required
Patient Death Date and Time	29	TS	26	C	C	[0..1]	Required if PID-30 Patient Death Indicator = "Y" If valued, PID-29 (Patient Death and Time), SHALL be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]' Ex: 20110319 or 20110319041627
Patient Death Indicator	30	ID	1	C	C	[0..1]	If valued, PID-30 (Patient Death Indicator), SHALL be valued to the Literal Value 'Y'.

3.1.4 PV1: Patient Visit Segment Definition

The PV1 segment is used by Registration/Patient Administration applications to communicate information on a visit-specific basis.

Example:

PV1|1|E||E|||||||||7|||||8399193|||||||||||||||||01|A0|||||||20091209031420|20091209031620<cr

Table 3.1.4: Patient Visit Segment Definition

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values/Value Set
Set ID - PV1	1	SI	4	RE	RE	[0..1]	**Note:** PV1-1 (Set ID) SHALL have the Literal Value of '1'
Patient Class	2	IS	1	R	RE	[1..1]	PHVS_PatientClass_Hl7_2x
Admission Type	4	IS	2	R	RE	[0..1]	PHVS_AdmissionType_HL7_2x See A.4 for more information.
Admit Source	14	IS	6	RE	RE	[0..1]	PHVS_AdmitSource_Hl7_2x
Ambulatory Status	15	IS	2	RE	RE	[0..1]	HL7 Table 0009_VD
Visit Number	19	CX	478	R	R	[1..1]	Unique identifier for this visit by this patient at this hospital. See Section A.5 for more information.
ID Number	19.1	ST	15	R	R	[1..1]	**Note:** Unique identifier for a patient visit
Identifier Type Code	19.5	ID	5	R	R	[1..1]	PHVS_IdentifierType_SyndromicSurveillance PV1-19.5 (Identifier Type Code) SHALL be valued to the Literal Value 'VN'.
Discharge Disposition	36	IS	3	RE	RE	[0..1]	PHVS_DischargeDisposition_HL7_2x
Admit Date/Time	44	TS	26	R	R	[1..1]	**Note:** PV1-44 (Admit Date/Time) SHALL be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/- ZZZZ]'..
Discharge Date/Time	45	TS	26	RE	RE	[0..*]	**Note:** Date and time of the patient discharge. YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.

3.1.5 PV2: Patient Visit Additional Information Segment Definition

The PV2 segment is a continuation of visit-specific information and is the segment where the Admit Reason is passed. Note: PV2 is optional if a DG1 segment is sent. If no DG1 segment is sent, the PV2 segment is required.

Example:

PV2|||625.9^PELVIC PAIN^I9<cr>

PV2|||^ABDMNAL PAIN<cr>

Table 3.1.5: Patient Visit Additional Information Segment Definition

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values/Value Set
Admit Reason	3	CE	478	RE	RE	[0..1]	Short description of the reason for patient's visit. If the description text has been identified with a code, the code also must be sent. Ex: |^FEVER/COUGH, HA| or |112.0^THRUSH^I9|
Identifier	3.1	ST	20	RE	RE	[0..1]	If an ICD-9, ICD-9-CM or ICD-10 code has been identified for the text in PV2-3.2, the code must be sent. Codes may be sent with or without embedded periods. Ex: V72.9 or V729, 454.0 or 4540, 945.22 or 94522
Text	3.2	ST	199	RE	RE	[0..1]	Short description relating only to the reason for the patient's visit. Any abbreviations used should be common to industry practice. Even if a code has been sent in PV2-3.1, this text component must be sent. Ex: "DIZZY, NAUSEA" or "PARALYSIS NOS"
Name of Coding System	3.3	ID	20	C	C	[0..1]	PHVS_CodingSystem_HL7_2x_Table0369 PV2-3.3 SHALL be valued to one of the Literal Values in the set ('I10', 'I9CDX', 'SCT').

3.1.6 OBX: Observation/Result Segment Definition

The OBX Segment in the ADT message is used to transmit observations related to the patient and visit. If the data element is carried in an OBX and usage is "Required," the segment and its fields must be populated.

Data elements required (RE) to be sent in OBX segments include:

- Chief Complaint
- Patient Age
- Patient Temperature (First Encounter)
- Patient Pulse Oximetry
- Patient Initial Blood Pressure
- Patient Weight
- Patient Height
- Patient Illness/Injury Onset Date
- Triage Notes
- Pregnancy Status

OBX Examples:

OBX example of CWE value type with Chief Complaint:

- OBX|1|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^STOMACH ACHE|||||F|||201112171531<cr>

OBX examples of NM value type with Patient Age, Patient Temperature, Patient Pulse Oximetry, Body Weight and Body Height:

- OBX|2|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|a^YEAR^UCUM|||||F|||201112171531<cr>
- OBX|3|NM|11289-6^BODY TEMPERATURE:TEMP:ENCTRFIRST:PATIENT:QN^LN||99.1|[degF]^FARENHEIT^UCUM||A|||F|||201112171658<cr>
- OBX|4|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE OXIMETRY^LN||95|%^PERCENT^UCUM||A|||F|||201112171658<cr>
- OBX|5|NM|3141-9^BODY WEIGHT^LN||160|[LB _AV]^POUNDS^UCUM|||||F|||201112171658<cr>
- OBX|6|NM|8302-2^BODY HEIGHT^LN||71|[IN_US]^INCHES^UCUM|||||F||201112171658<cr>

OBX examples of TS value type with Patient illness/injury onset date:

- OBX|7|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME:TMSTP:PT:PATIENT:QN^LN||20111215|||||F|||201112171658<cr>

OBX examples of TX value type with Patient triage notes:

- OBX|8|TX|54094-8^TRIAGENOTE:FIND:PT:EMERGENCYDEPARTMENT:DOC^LN||Pain, a recurrent cramping sensation.|||||F|||201102121114<cr>

OBX examples of a SN value type with Blood Pressure

- OBX|7|SN|39094-2^BLOOD PRESSURE PANEL^LN||^130^/^74|mm[Hg]^Millimeters of Mercury^UCUM|||||F<cr>

Table 3.1.6: Observation/Result Segment Definition							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values/Value Set**
Set ID - OBX	1	SI	4	O	RE	[0..1]	**Note:** Set ID numbers the repetitions of the segments For the first repeat of the OBX segment, the sequence number shall be one (1), for the second repeat, the sequence number shall be two (2), etc. Example: OBX|1|…. OBX|2|…. OBX|3|….
Value Type	2	ID	3	R	R	[1..1]	**Note:** OBX-2 SHALL be valued to the Literal Value in the set ('TS', 'TX', 'NM', 'CWE', 'XAD').
Observation Identifier	3	CE	478	R	R	[1..1]	Observation Identifier (Syndromic Surveillance) See above for RE data elements.
Identifier	3.1	ST	20	R	R	[1..1]	
Text	3.2	ST	199	O	O	[0..1]	
Name of Coding System	3.3	ID	20	C	C	[0..1]	**Condition Rule**: Required if an identifier is provided in component 1.
Observation Value	5	varies	99999	RE	RE	[0..*]	**Note:** Values received in observation value are defined by value type (OBX.2) and observation identifier (OBX.3). Listed below are the supported fields for each of the supported value types.
Beginning of OBX-5 Observation Value Usage Based on Data Type in OBX-2							
TS Data Type							
Time	5.1	DTM	24	RE	RE	[0..1]	**Note:** The minimum acceptable precision is to the nearest day.
TX Data Type							
Text Data	5.1	TX	65536	RE	RE	[0..1]	**Note:** The TX data type is used to carry string data intended for display purposes. It can contain leading blanks (space characters).
NM Data Type							
Numeric Value	5.1	ST	16	RE	RE	[0..1]	**Note:** A numeric data type is a number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point, the number is assumed to be an integer.
CWE Data Type							
Identifier	5.1	ST	20	RE	RE	[0..1]	**Note:** Implementers should check with their local jurisdiction for version of adopted coding system.
Text	5.2	ST	199	RE	RE	[0..1]	It is strongly recommended that text be sent to accompany any identifier.
Name of Coding System	5.3	ID	20	C	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 1.
Alternate Identifier	5.4	ST	20	RE	RE	[0..1]	

Alternate Text	5.5	ST	199	RE	RE	[0..1]	It is strongly recommended that text be sent to accompany any identifier.
Name of Alternate Coding System	5.6	ID	20	C	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 4.
Coding System Version ID	5.7	ST	10	O	O	[0..1]	
Alternate Coding System Version ID	5.8	ST	10	O	O	[0..1]	
Original Text	5.9	ST	199	RE	RE	[0..1]	Provide the richest text available in this field.
SN Data type							
Structured Numeric Data	5.1	ST	20	RE	RE	[0..1]	**Note:** Provide a "^" before each character or number.
End of OBX-5 Observation Value Usage Based on Data Type in OBX-2							
Units	6	CE	62	C	C	[0..1]	PHVS_PulseOximetryUnit_UCUM PHVS_TemperatureUnit_UCUM PHVS_AgeUnit_SyndromicSurveillance **Note:** Units are a conditional field. If numeric data is sent, the units field must define the units of the value used in observation value (OBX.5).
Identifier	6.1	ST	20	R	R	[1..1]	
Text	6.2	ST	20	O	O	[0..1]	Standardized description associated with code in OBX-6.1.
Name of Coding System	6.3	ID	20	C	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 1.
Observation Result Status	11	ID	1	R	R	[1..1]	Expected value: "F"
Date/Time of the Observation	14	TS	26	O	O	[0..1]	

3.1.7 DG1: Diagnosis Segment Definition

The DG1 segment contains patient diagnosis information of various types. Syndromic Surveillance supports Admitting, Working and Final Diagnosis Types.

Examples:

DG1|1||789.00^ABDMNAL PAIN UNSPCF SITE||201112201650|A<cr>

DG1|1||^SPRAIN LUMBAR REGION^||201112201650|F<cr>

DG1|1||8472^SPRAIN LUMBAR REGION^I9||201112201650|F<cr>

Table 3.1.7: Diagnosis Segment Definition

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values/Value Set
Set ID - DG1	1	SI	4	R	R	[1..1]	DG1-1 (Set ID) for the first occurrence of a DG1 Segment SHALL have the Literal Value of '1'. Each following occurrence SHALL be numbered consecutively.
Diagnosis Coding Method	2	ID	2	C	C	[0..1]	Name of standardized coding scheme used for the code in DG1-3. If no code was specified in DG1-3.1, there is no need to populate this component. ICD9 is the preferred coding methodology. Literal Values: "I9" (ICD-9) or "I9C" (ICD-9-CM) or "I10" (ICD-10)
Diagnosis Code	3	CE	478	R	R	[0..1]	If an ICD-9, ICD-9-CM or ICD-10 code has been identified for the diagnosis text, the code must be sent in DG1-3.1. The diagnosis text and coding system may either be included as components 2 and 3 of the DG1-3 Coded Element structure or as separate fields in DG1-2 and DG1-4.
Identifier	3.1	ST	20	R	RE	[1..1]	If an ICD-9, ICD-9-CM or ICD-10 code has been identified for the text in DG1-3.2 or DG1-4, the code must be sent. Codes may be sent with or without embedded periods. Ex: V72.9 or V729, 454.0 or 4540, 945.22 or 94522
Text	3.2	ST	199	RE	RE	[1..1]	Short description relating only to the reason for the patient's visit. Any abbreviations used should be common to industry practice. Even if a code has been sent in DG1-3.1, a text component must be sent either here or in DG1-4. Ex: "DIZZY, NAUSEA" or "CHR AIRWAY OBSTRUCT NEC"
Name of Coding System	3.3	ID	20	C	C	[1..1]	DG1-3.1 SHALL be valued to one of the Literal Values in the set ('I10', 'I9CDX', 'SCT').

Diagnosis Description	4	ST	40	RE	RE	[0..0]	Short description relating only to the reason for the patient's visit. Any abbreviations used should be common to industry practice. Even if a code has been sent in DG1-3.1, a text component must be sent either here or in DG1-3.2. Ex: "PARALYSIS NOS" or "CHR AIRWAY OBSTRUCT NEC
Diagnosis Date/Time	5	TS	26	RE	RE	[0..1]	Diagnosis Date/Time
Diagnosis Type	6	IS	2	R	R	[1..1]	PHVS_DiagnosisType_HL7_2x

3.1.8 PR1: Procedures Segment Definition

The PR1 segment contains patient procedures information. All procedures done during the course of the visit until discharge or transfer should be listed here.

Example: PR1|1||111^CODE151|| 20120420081123 <cr>

Table 3.1.8: Procedures Segment Definition

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values/Value Set
Set ID – PR1	1	SI	4	R	R	[1..1]	**Note:** Numbers the repetitions of the segments.
Procedure Code	3	CE	478	RE	RE	[1..1]	Standardized code and description for procedure performed.
Identifier	3.1	ST	20	RE	RE	[0..1]	Standardized identifier for procedure. Valid values include ICD9 Clinical Modification Procedure codes, or ICD10 Clinical Modification Procedure codes
Text	3.2	ST	199	R	R	[1..1]	Standardized description relating to the procedure code in PR1-3.1. Even if a code has not been sent in PR1-3.1, a text component must be sent here. Any abbreviations used should be common to industry practice.
Name of Coding System	3.3	ID	20	C	C	[0..1]	The name of the coding system for value of PR1-3.1. This value is required if an identifier is provided in component 1.
Procedure Date/Time	5	TS	26	R	R	[1..1]	Date and time of the procedure indicated in PR1-3.1

3.1.9 IN1: Insurance Segment Definition

This is an optional segment

Example: IN1|1|123|999 <cr>

Table 3.1.9: Insurance Segment Definition							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values/Value Set**
Set ID – IN1	1	SI	4	R	R	[1..1]	**Note:** SET ID numbers the repetitions of the segments.
Insurance Plan ID	2	CE	478	O	O	[1..1]	
Insurance Company ID	3	CX	250	R	R	[1..*]	Insurance Company ID
Plan Type	15	IS	3	O	O	[0..1]	

4 HL7 Batch Protocol

The HL7 Batch Protocol can be used to allow for periodic reporting. The HL7 file and batch header and trailer segments are defined in exactly the same manner as the HL7 message segments; hence, the same HL7 message construction rules used for individual messages can be used to encode and decode HL7 batch files. **One batch of messages per file is supported.**

4.1 HL7 Batch File Structure

The structure of the batch file is constrained as follows:

Table 4.1: Batch Simple File Structure

Segment	Name	Description	Usage	Cardinality
FHS	File Header Segment	Information explaining how to parse and process the file. This information includes identification of the file delimiters, sender, receiver, timestamp, etc.	R	[1..1]
BHS	Batch Header Segment	Trigger event information for receiving application. One batch per file is supported	R	[1..1]
{HL7 Messages}			R	[1..*]
BTS	Batch Trailer Segment		R	[1..1]
FTS	File Trailer Segment		R	[1..1]

4.2 File Header(FHS) Segment

Table 4.2: File Header Segment (FHS)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
File Field Separator	1	ST	1	R	R	[1..1]	Default Value "|" (ASCII 124).
File Encoding Characters	2	ST	4	R	R	[1..1]	Default Values "^~\&" (ASCII
File Sending Application	3	HD	227	O	O	[0..1]	
File Sending Facility	4	HD	227	O	RE	[0..1]	
File Receiving Application	5	HD	227	O	O	[0..1]	
File Receiving Facility	6	HD	227	O	O	[0..1]	
File Creation Date/Time	7	TS	26	O	RE	[0..1]	
File Security	8	ST	40	X	X	[0..1]	
File Name/ID	9	ST	20	O	RE	[0..1]	
File Header Comment	10	ST	80	O	O	[0..1]	
File Control ID	11	ST	199	O	RE	[0..1]	

Reference File Control ID	12	ST	20	O	RE	[0..1]	

Example: FSH|^~\&<cr>

4.3 File Trailer (FTS) Segment

Table 4.3: File Trailer (FTS) Segment

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
File Batch Count	1	NM	10	R	RE	[0..1]	The number of batches contained in this file. Since this interface is constrained to one batch per file, this number
File Trailer Comment	2	ST	80	O	O	[0..1]	

Example: FTS|1<cr>

4.4 Batch Header (BHS) Segment

Table 4.4: Batch Header Segment (BHS)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Batch Field Separator	1	ST	1	R	R	[1..1]	Default Value "|" (ASCII 124).
Batch Encoding Characters	2	ST	4	R	R	[1..1]	Default Values "^~\&" (ASCII 94,126,92, and 38).
Batch Sending Application	3	HD	227	R	R	[1..1]	
Batch Sending Facility	4	HD	227	R	R	[1..1]	
Batch Receiving Application	5	HD	227	R	R	[1..1]	
Batch Receiving Facility	6	HD	227	R	R	[1..1]	
Batch Creation Date/Time	7	TS	26	R	R	[1..1]	
Batch Security	8	ST	40	X	X	[0..1]	
Batch Name/ID	9	ST	20	O	RE	[0..1]	
Batch Header Comment	10	ST	80	O	RE	[0..1]	
Batch Control ID	11	ST	20	O	RE	[0..1]	

Reference Batch Control ID	12	ST	20	O	RE	[0..1]	

Example: BHS|^~\&|ER1^2.16.840.1.113883.19.3.1.1^ISO
|CITY_GENERAL^2.16.840.1.113883.19.3.1^ISO|SS_APP^2.16.840.1.113883.19.3.2.1^ISO|SPH^2.16.840.1.113883.19.3.2^ISO|20080723123558-0400<cr>

4.5 Batch Trailer (BTS) Segment

Table 4.5: Batch Trailer Segment (BTS)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Batch Message Count	1	NM	10	R	RE	[0..1]	The number of messages contained in the preceding batch.
Batch Comment	2	ST	80	O	RE	[0..1]	
Batch Totals	3	NM	100	X	X	[0..*]	

Example: BTS|100|Facility reporting for 2-1-2011<cr>

5 Sample Messages

A minimal amount of data was intentionally used to provide emphasis on the Syndromic Surveillance data elements of interest.

5.1 A04 Outpatient/Emergency Department Registration; No Updates

In the following example, a non-Hispanic white female, Ann A. Everyperson, 67 years old, visits the Midland Health Center Emergency Department with an infected abrasion on her forearm. The Medical Record Number, 20060012168, is sent for the patient identifier. Since this is an Emergency Department visit, PV1-44 reflects the time the patient registered in the Emergency Department. The Admit Reason is coded in ICD-9. The original provider of the data, Midland Health Center, is captured in the EVN-7. The facility location and visit type was provided by Midland Health Center.

Midland Health Center has requested acknowledgement of the message by the State Public Health. A sample acknowledgement is included.

MSH|^~\&||MIDLAND HLTH CTR^9876543210^NPI|State_SS|State_Public_Health|201102091114||ADT^**A04**^**ADT_A01**|201102091114-0078|P|2.5.1<cr>
EVN||201102091114||||MIDLAND HLTH CTR^9876543210^NPI<cr>
PID|1||**20060012168**^^^^**MR**^MIDLAND HLTH CTR&9876543210&NPI||EVERYPERSON^ANN^A^^^^L|||**F**||2106-3^**White**^CDCREC|^^^13^30341^USA^C||||||||||2186-5^**Not Hispanic**^CDCREC<cr>
PV1||E||E|||||||||1||||20110209_0064^^^^VN|||||||||||||||||||||||20110217144208<cr>
PV2|||9131^ABRASION FOREARM-INFECT^I9CDX<cr>
OBX|1|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||^^^13^30341^USA^C|||||F|||201102091114<cr>
OBX|2|CWE|SS003^FACILITY / VISIT TYPE^PHINQUESTION||1108-0^EMERGENCY DEPARTMENT^HSLOC|||||F|||201102091114<cr>

5.2 A04 Outpatient/Emergency Department Registration Followed By A08 Update

In the next example, a non-Hispanic black male, 52 years old, visits the City General Hospital Emergency Department with a headache for 2 days. City General Hospital does not transmit Medical Record Numbers, so it uses a unique patient identifier of 95101100001, in PID-3. The chief complaint was sent as free text and an admitting diagnosis was sent in the DG1 segment, coded in ICD-9.

MSH|^~\&||CITY GENL HOSP^0133195934^NPI|||20110217144317||ADT^**A04**^**ADT_A01**|E100648329|P|2.5.1<cr>
EVN||20110217144317||||CITY GENL HOSP^0133195934^NPI<cr>
PID|1||95101100001^^^^PI||~^^^^^^U|||M||2054-5^**Black or African American**^CDCREC|^^^29^65101|||||||||2186-5^**Not Hispanic**^CDCREC<cr>
PV1||E||E|||||||||1||||8399193^^^^VN|||||||||||||||||||||||20110217144208<cr>
OBX|1|NM|21612-7^AGE TIME PATIENT REPORTED^LN||52|a^YEAR^UCUM|||||F|||201102171443<cr>
OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^**HEADACHE FOR 2 DAYS**<cr>
DG1|1||**4739^CHRONIC SINUSITIS NOS^I9CDX**||A<cr>

Continuing the example above, a non-Hispanic black male, 52 years old, visits the City General Hospital Emergency Department with a headache for 2 days. City General Hospital wants to update the receiving system with new information about the same patient and the same visit.

The Visit Number and Admit Date/Time have not changed, but the Message Date/Time and Message Control ID have. An A08 message is used to transmit the additional information: Temperature, Blood Oxygen Level, and Final Diagnosis.

MSH|^~\&||CITY GENL HOSP^0133195934^NPI|||**20110217145139**||ADT^**A08**^**ADT_A01**|**E100648353**|P|2.5.1<cr>
EVN||20110217144317||||CITY GENL HOSP^0133195934^NPI<cr>
PID|1||95101100001^^^^PI^CITY GENL HOSP&0133195934&NPI||~^^^^^^U|||M||2054-5^Black or African American^CDCREC|^^^29^65101|||||||||2186-5^**Not Hispanic**^CDCREC<cr>
PV1||E||E|||||||||1||||8399193^^^^VN|||||||||||||||||||||||20110217144208<cr>
OBX|1|NM|21612-7^AGE TIME PATIENT REPORTED^LN||52|a^YEAR^UCUM|||||F|||20110217145139<cr>
OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^HEADACHE FOR 2 DAYS<cr>
OBX|3|NM|11289-6^BODY TEMPERATURE:TEMP:ENCTRFIRST:PATIENT:QN^LN||100.1|[degF]^FARENHEIT^UCUM||A|||F|||20110217145139<cr>
OBX|4|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE OXIMETRY^LN||91|%^PERCENT^UCUM||A|||F|||20110217145139<cr>
DG1|1||4739^CHRONIC SINUSITIS NOS^I9CDX|||A<cr>

DG1|2||04100^STREPTOCOCCUS UNSPECF^I9CDX|||F<cr>

5.3 A04 Emergency Department Registration; A01 Inpatient Admission; A03 Discharge Including Patient Death

In the next example, a non-Hispanic white female, 43 years old, visits the Other Regular Medical Center Emergency Department with a chief complaint of a stomach ache. The chief complaint was sent as free text.

MSH|^~\&||OTHER REG MED CTR^1234567890^NPI|||201102171531||ADT^**A04^ADT_A01**|201102171531956|P|2.3.1<cr>
EVN||201102171531<cr>
PID|1||FL01059711^^^^PI||~^^^^^^U|||F||2106-3^White^CDCREC|^^^12^33821|||||||||2186-5^**Not Hispanic**^CDCREC<cr>
PV1||E||E|||||||||7|||||V20220217-00274^^^^VN|||||||||||||||||||||201102171522<cr>
PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX<cr>
OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED CTR^1234567890^NPI|||||F|||201102171531<cr>
OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^**STOMACH ACHE|||||F|||201102171531**<cr>
OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|a^YEAR^UCUM|||||F|||201102171531<cr>
DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A<cr>

Continuing the example, the same non-Hispanic white female, 43 years old, visits the Other Regular Medical Center Emergency Department with a chief complaint of a stomach ache. The patient is suspect for appendicitis and is admitted as an inpatient. The patient also has reported that she has had a stomach ache since the 15th of February. The patient class (PV1.2) is changed to Inpatient. Admit Date/Time (PV1.44) is updated with the admission date and time.

In this particular case, visit number (PV1.19) has remained the same. However, it is recognized that some insurance companies require the visit number to be changed when a patient is admitted from the Emergency Department.

MSH|^~\&||OTHER REG MED CTR^1234567890^NPI|||201102171658||**ADT^A01^ADT_A01**|201102171658076|P|2.3.1<cr>
EVN||201102171658<cr>
PID|1||FL01059711^^^^PI||~^^^^^^U|||F||2106-3^White^CDCREC|^^^12^33821|||||||||2186-5^Not Hispanic^CDCREC<cr>
PV1||**I**||E|||||||||7|||||**V20220217-00274^^^^VN**|||||||||||||||**09**|||||||**201102171656**<cr>
PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX<cr>
OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED CTR^1234567890^NPI|||||F|||201102171531<cr>
OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^STOMACH ACHE|||||F|||201102171531<cr>
OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|a^YEAR^UCUM|||||F|||201102171531<cr>
OBX|4|NM|11289-6^BODY
TEMPERATURE:TEMP:ENCTRFIRST:PATIENT:QN^LN||99.1|[degF]^FARENHEIT^UCUM||A|||F|||201102171658<cr>
OBX|5|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE
OXIMETRY^LN||95|%^PERCENT^UCUM||A|||F|||201102171658<cr>
OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME:TMSTP:PT:PATIENT:QN^LN||20110215|||||F|||201102171658<cr>
DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A<cr>
DG1|2||5409^ACUTE APPENDICITIS NOS^I9CDX|||W<cr>

Continuing the example, the same non-Hispanic white female, 43 years old, visits the Other Regular Medical Center emergency department with a chief complaint of a stomach ache. The patient has expired and this is indicated in PV1.36 (Code=20). A final diagnosis also is sent. It also is indicated by the “Y” in PID-30 and the Date and Time of Death in PID-29. The discharge date/time (PV1.45) is sent with the A03 message type.

MSH|^~\&| |OTHER REG MED CTR^1234567890^NPI|||201102172334||ADT^**A03^ADT_A03**|201102172334640|P|2.3.1<cr>
EVN||201102172334
PID|1||FL01059711^^^^PI||~^^^^^^U|||F||2106-3^White^CDCREC|^^^12^33821|||||||||2186-5^Not Hispanic^CDCREC|||||||**201102172334**|**Y**<cr>
PV1||I||E|||||||||7|||||V20220217-00274^^^^VN|||||||||||||||**20**|||||||201102171656|**201102172334**<cr>
PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX<cr>
OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED CTR^1234567890^NPI|||||F|||201102171531<cr>
OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^STOMACH ACHE|||||F|||201102171531<cr>
OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|a^YEAR^UCUM|||||F|||201102171531<cr>
OBX|4|NM|11289-6^BODY
TEMPERATURE:TEMP:ENCTRFIRST:PATIENT:QN^LN||99.1|[degF]^FARENHEIT^UCUM||A|||F|||201102171658<cr>
OBX|5|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE
OXIMETRY^LN||95|%^PERCENT^UCUM||A|||F|||201102171658<cr>

OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME:TMSTP:PT:PATIENT:QN^LN||20110215|||||F|||201102171658<cr>
DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A<cr>
DG1|2||5409^ACUTE APPENDICITIS NOS^I9CDX|||W<cr>
DG1|3||5400^AC APPEND W PERITONITIS^I9CDX|||F<cr>

5.4 A01 Inpatient Admission; No Updates

In the following example, a Hispanic white male, age currently 20, is admitted as an inpatient to the Mid-Co Health Center Emergency Department after falling down the stairs. The Medical Record Number is sent for the patient identifier and the patient account number is sent for the visit number.

MSH|^~\&||MID-CO HLTH CTR^9876543210^NPI|||201110090314||ADT^**A01**^**ADT_A01**|201110090314-0017|P|2.3.1<cr>
EVN||201110090314<cr>
PID|1||MD01059711^^^ADMITTING^MR^MID-CO HLTH CTR^9876543210^NPI||~^^^^^^U|||M||2106-3^White^CDCREC|^^^24^21502||||||||||2135-2^**Hispanic or Latino**^CDCREC<cr>
PV1||**I**||E|||||||||**6**|||||20111009_0034^^^^AN^MID-CO HLTH CTR&9876543210&NPI ||||||||||||||||||||||20111009025915<cr>
OBX|1|NM|21612-7^AGE PATIENT QN REPORTED^LN||2**0**|a^YEAR^UCUM|||||F|||201102171531<cr>
OBX|2|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||MID-CO HLTH CTR^9876543210^NPI|||||F|||201102171531<cr>
DG1|1||E8809^FALL ON STAIR/STEP NEC^I9CDX|||A<cr>

5.5 Batch Example

In the following example, Mid-Co Health Center sends their syndromic data to their state public health authority. Mid-Co sends the messages that have gathered over the last 12 hour period in batch message format. There are 240 messages.

FHS|^~\&<cr>
BHS|^~\&|ER1|MID-CO_HLTH_CTR^9876543210^NPI|SS_APP^2.16.840.1.113883.19.3.2.1^ISO|SPH^2.16.840.1.113883.19.3.2^ISO|20110123123558<cr>

MSH|^~\&|ER1|MID-CO HLTH CTR^9876543210^NPI|SS_APP^2.16.840.1.113883.19.3.2.1^ISO|SPH^2.16.840.1.113883.19.3.2^ISO|20110123003938||ADT^**A01**^**ADT_A01**|ER1-20110123-001|P|2.5.1<cr>
… (Continue 240 messages)…

BTS|240|Mid-Co reporting 1-23-2011: 0000 – 1200 hrs<cr>
FTS|1<cr>

5.6 Sample International Address Formats; Converted to PID Segments

5.6.1 Mexico

Super Manzana 3 - 403	[street name + building number - apartment number]
Puerto Juarez	[village]
77520 CANCUN, Q. ROO	[postcode + locality name, province abbreviation]
MEXICO	[country name]

Example PID segment:
PID|1||MX01059711||~^^^^^^U|||M|||Super Manzana 3 - 403^Puerto Juarez^CANCUN^Q. ROO^77520^MEX<cr>

5.6.2 Canada

111 FAIRFORD STREET EAST

MOOSE JAW SK S6H 2X1

CANADA

Example PID Segment:

PID|1||CA01059711||~^^^^^^U|||M|||111 FAIRFORD STREET EAST^^MOOSE JAW^SK^S6H 2X1^CAN<cr>

Appendix A Message Transmission

A.1 Memorandum of Agreement

Each Facility who seeks to establish interfaces with the North Dakota Department of Health must be validated prior to processing HL7 messages. For more information about NDSS and the recruiting process to send data, please visit http://www.ndhealth.gov/disease/ss/.

A.2 Transmission Methods

A.2.1 Secure FTP

Appendix B ACK General Acknowledgement Message

This message type will be returned to the ADT message sender when the message is submitted to the State in single message format using the following segments:

- MSH
- MSA

B.1 MSH: Message Header for General Acknowledgement Message Segment Definition

The following table provides detail for the MSH segment that will be included in the ACK General Acknowledgement message type.

Example:

MSH|^~\&|NDSS|NDSS|EPIC|MyHosp|201009171830||ACK|201009171830_0268|P|2.5.1<cr>

Table 3.1.1: Message Header Segment Definition							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values/Value Set**
Field Separator	1	ST	1	R	R	[1..1]	Default Value "|" (ASCII 124).
Encoding Characters	2	ST	4	R	R	[1..1]	Default Values "^~\&" (ASCII 94, 126, 92, and 38).
Sending Application	3	HD	227	O	O	[0..1]	Identifies the sending application from the other HL7 message exchange applications belonging to the sender. Hospitals frequently send the name of their software vendor or an internally developed system here. Ex: MYEMR-2000
Sending Facility	4	HD	227	R	R	[1..1]	Field that uniquely identifies the facility associated with the application that sends the message.
Namespace ID	4.1	IS	20	RE	RE	[0..1]	Name of originating hospital. NDSS suggests that a shortened name, abbreviation or acronym be used in the first component. Ex. LOCAL GENL HOSP
Universal ID	4.2	ST	199	R	R	[1..1]	Unique identifier for the sending facility. The supported value is the ten-digit National Provider ID.
Universal ID Type	4.3	ID	6	R	R	[1..1]	Code system for the universal identifier. If MSH-4.2 contains a National Provider ID, use literal: "NPI."
Receiving Application	5	HD	227	O	O	[0..1]	Unique identifier for the receiving application. Literal value: "NDSS."
Receiving Facility	6	HD	227	O	O	[0..1]	Unique identifier for the receiving application. Literal value: "NDDOH."
Date/Time Of Message	7	TS	26	R	R	[1..1]	**Note:** Date/Time the sending system created the message in the following format: YYYYMMDDHHMMSS[.S[S[S[S]]]]] [+/-ZZZZ]. The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver. Ex: 20111209143807

Message Type	9	MSG	15	R	R	[1..1]	**Note:** All messages will be Admit-Discharge-Transfer (ADT) message types. The triggering event is a real-world circumstance causing the message to be sent. Supported trigger events are A01 (Inpatient Admission), A04 (Emergency Department Registration) and A08 (Update). Ex: ADT^A08
Message Code	9.1	ID	3	R	R	[1..1]	Literal Value "ADT"
Trigger Event	9.2	ID	3	R	R	[1..1]	One of the following literal values: "A01", "A03", "A04", or "A08"
Message Control ID	10	ST	199	R	R	[1..1]	**Note:** A number or other identifier that uniquely identifies the message and is echoed back in the message acknowledgment segment (MSA). Some hospitals send a Date/Time stamp using microsecond precision or a Date/Time stamp using minute precision plus a sequence number that restarts each day at one or wraps around when it reaches all 9's. Ex: 20101128070123463 or 8X34562 or 201011280701_01234
Processing ID	11	PT	3	R	R	[1..1]	**Note:** Indicates how to process the message as defined in HL7 processing rules. Literal values: "P" for production, "D" for Debug or "T" for Training. PHVS_ProcessingID_HL7_2x
Version ID	12	VID	5	R	R	[1..1]	**Note:** HL7 version number used to interpret format and content of the message. Literal value: "2.5.1"

B.2 MSA Segment Definition

In order to acknowledge a correct receipt of a message, message receivers use the MSA segment.

Example:

MSA|AA|201102091114007||||0<cr>

Table B.2: Message Acknowledge Segment Definition

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values/Value Set
Acknowledgement Code	1	ID	2	R	R	[1..1]	Table 0008
Message Control ID	2	ST	20	R	R	[1..1]	Specified the value in MSH 10 of the message being acknowledged.
Error Condition	6	CE	250	RE	RE	[0..1]	

Appendix C Additional Encoding Considerations

C.1 Use of Three-Digit FIPS Codes

FIPS codes are often expressed as a five-character code made up of the two-letter state code (available at www.itl.nist.gov/div897/pubs/fip52.htm) plus a three-digit county code (e.g., ND001 represents Adams County, North Dakota and AL001 represents Atauga County, Alabama). However, since the state is sent in a separate component of the address, NDSS requests to receive just the three-digit county code. See Appendix D for a list of ND counties; leading zeros must NOT be suppressed.

C.2 Coding Considerations for Homeless and International Patients

Difficulties often arise when a patient has supplied an international address. If the patient does not know his or her two-character state or province code, websites are available with this information. You also may send the state or province name in the county component.

If you are able to identify when a patient is homeless or from another country, but without a fully populated address, you may consider using the following FIPS codes:

Table C.2	**FIPS Code Usage for the homeless and from other countries.**		
HL7 Element	Element Name	Value to use for Homeless person	Value to use for non-U.S. person
PID-11.4	State	97	98
PID-11.5	Zip/ Postal Code	99997	99998
PID-11.6	Country	9997	Table 0212
PID-11.9	County	997	998

C.3 Deriving Patient Death Information from Discharge Information

Some hospitals do not capture information in PID-29 Patient Death Date/Time and PID-30 Patient Death Indicator. These hospitals often find they can derive this information from PV1-36 Discharge Status/ Disposition and PV1-45 Discharge Date/Time.

Table C.3	**Deriving Patient Death Information from Discharge Information**	
PV1- 36 Discharge Status	**PID-29 Death Date/Time**	**PID-30 Death Indicator**
Indicates patient still alive	Leave Empty	N
Indicates patient is expired	Use PV1-45 Discharge Date/Time	Y

C.4 Deriving Admission Type

Admission Type does not have a standard industry-wide definition and will likely require a conversion. For example, if you use the Uniform Billing-92 (UB-92) Field 19 codes, your conversion will likely be:

Table C.4	**Deriving Admission Type from Uniform Billing-92 Codes**		
Uniform Billing — 92 Code	Uniform Billing Description	Code to send NDSS	NDSS Description
1	Emergency	E	Emergency
2	Urgent Care	E	Emergency
3	Elective	R	Routine

4	Newborn	L	Labor & Delivery
5	Trauma (if normally used for MVA or industrial accidents	A	Accident
9	Information not available	R	Routine

The main situation where this field becomes important to NDSS is when a patient is admitted after being seen in the Emergency Department. This is because our syndromic surveillance includes emergency circumstance Inpatient data along with Emergency Department visits and Urgent Care visits in some types of analysis. In the case where the patient is admitted after being seen in the Emergency Department, NDSS needs to receive "E" in the PV1-4 Admission Type.

Many hospitals have found it reasonable to put "E" in PV1-4 Admission Type whenever PV1-14 Admit Source = "7" (Emergency Department). Others have found evidence that the patient was first seen in the Emergency Department by examining values from PV1-6 Prior Patient Location, PV1-10 Hospital Service, PV1-39 Servicing Facility or PV1-43 Prior Temporary Location.

C.5 Visit Number

Unlike the Medical Record Number, which is expected to stay the same each time the patient visits the hospital, the Visit Number is to be unique for each visit by the patient. There are a few exceptions like recurring visits to an Emergency Department to get blood pressure checks, red blood cell counts or dilation measurements. Moreover, some insurance companies require that a new Visit Number be assigned when a patient transfers from the Emergency Department to an Inpatient, while other insurance companies require the Visit Number to stay the same. These exceptions are expected.

Not all hospitals capture separate value for the Visit Number, but many have found that their PID-18 Patient Account Number fulfills the uniqueness requirements for a Visit Number and use the PID-18 Patient Account Number to populate the PV1-19 Visit Number. Please note that if your Patient Account Number or Visit Number system starts back over at one each year, this does not result in unique visit numbers. One method to make such a sequence number unique is to prefix the number with the year. Others have constructed Visit Numbers using a date and sequence number that restarts each day at one or wraps around when it reaches all 9's.

Appendix D NDSS Code Sets

All Value/Value Sets denoted by a four-digit code (ex. 0001) may be found by searching at: http://phinvads.cdc.gov/vads/SearchHome.action.

NDSS will use code sets associated with the PHIN messaging guide for Syndromic Surveillance. For access to the code sets, see http://phinvads.cdc.gov/vads/ViewView.action?id=CFA926B5-4405-E011-9273-00188B39829B. Additional code sets from HL7 may be used and are referenced below.

Table 0008	**Query Results Value** (values suggested by HL7 v 2.5.1) **Note:** Used for MSA Acknowledgement Code
Value	**Description**
O	Order plus order status
R	Results without bulk text
S	Status Only
T	Full Results

Table 0009	**Ambulatory Status_CD** (values suggested by HL7 v 2.5.1)
Value	**Description**
A0	No functional limitations
A1	Ambulates with assistive device
A2	Wheelchair/stretcher bound
A3	Comatose; non-responsive
A4	Disoriented
A5	Vision impaired
A6	Hearing impaired
A7	Speech Impaired
A8	Non-English speaking
A9	Functional level unknown
B1	Oxygen therapy
B2	Special equipment (tubes, IVs, catheters)
B3	Amputee
B4	Mastectomy
B5	Paraplegic
B6	Pregnant

Table 0069	**Hospital services** (values suggested by HL7 v. 2.5.1)
Value	**Description**
CAR	Cardiac Service
MED	Medical Service
PUL	Pulmonary Service
SUR	Surgical Service
URO	Urology Service

Table 0301	**Universal ID Type**
Value	**Description**
DNS	An Internet dotted name. Either in ASCII or as integers.
GUID	Same is UUID.
HCD	The Cen Healthcare Coding Scheme Designator. (Identifiers used in DICOM follow this assignment scheme.)
HL7	Reserved for future HL7 registration schemes.
ISO	An International Standards Organization Object Identifier.

L,M,N	These are reserved for locally defined coding shcemes.
Random	Usually a base64 encoded string of random bits. <p> The uniqueness depends on the length of the bits. Mail systems often fenerate ASCII string “unique names,” from a combination of random bits and system names.
URI	Uniform Resource Identifier
UUID	The DCE Universal Unique Identifier
X400	An X400 MHS format identifier
X500	An X500 directory name

Table 0357	**Message Error Condition Codes**
Value	**Description**
0	Message Accepted
100	Segment Sequence Error
101	Required Field Missing
102	Data Type Error
103	Table Value Not Found
200	Unsupported Message Type
201	Unsupported Event Code
202	Unsupported Processing Code
203	Unsupported Version ID
204	Unknown Key Identifier
205	Duplicate Key Identifier
206	Application Record Locked
207	Application Internal Error

PHVS_Admission Type_HL7_2x **Note:** The only codes listed are those needed for this implementation. **Value Set OID: 2.16.840.1.114222.4.11.913**	
Value	**Description**
A	Accident
E	Emergency
L	Labor & Delivery
R	Routine
U	Urgent

PHVS_AdmitSource_HL7_2x **Value Set OID: 2.16.840.1.114222.4.11.918**	
Value	**Description**
1	Physician Referral
2	Clinic Referral
3	HMO Referral
4	Transfer from a Hospital
5	Transfer from a Skilled Nursing Facility
6	Transfer from Another Health Care Facility
7	Emergency Room
8	Court/Law Enforcement
9	Not Available

PHVS_AgeUnit_SyndromicSurveillance **Value Set OID: 2.16.840.1.114222.4.11.3402**	
Value	**Description**

D	Day
Mo	Month
UNK	Unknown
Wk	Week
A	year

PHVS_Country_ISO_3166-1 **Value Set OID: 2.16.840.1.114222.4.11.828**	
Value	**Description**
CAN	Canada
MEX	Mexico
USA	United States
UMI	United States Minor Outlying Islands

PHVS_County_FIPS_6-4 County/Parish
Value Set OID: 2.16.840.1.114222.4.11.829

ND Counties – A complete of FIPS 6-4 U.S. County codes is at:
http://phinvads.cdc.gov/vads/ViewValueSet.action?id=20D34BBC-617F-DD11-B38D-00188B398520

FIPS Code	County Name	FIPS Code	County Name	FIPS Code	County Name
001	Adams	037	Grant	073	Ransom
003	Barnes	039	Griggs	075	Renville
005	Benson	041	Hettinger	077	Richland
007	Billings	043	Kidder	079	Rolette
009	Bottineau	045	LaMoure	081	Sargent
011	Bowman	047	Logan	083	Sheridan
013	Burke	049	McHenry	085	Sioux
015	Burleigh	051	McIntosh	087	Slope
017	Cass	053	McKenzie	089	Stark
019	Cavalier	055	McLean	091	Steele
021	Dickey	057	Mercer	093	Stutsman
023	Divide	059	Morton	095	Towner
025	Dunn	061	Mountrail	097	Traill
027	Eddy	063	Nelson	099	Walsh
029	Emmons	065	Oliver	101	Ward
031	Foster	067	Pembina	103	Wells
033	Golden Valley	069	Pierce	105	Williams
035	Grand Forks	071	Ramsey		

PHVS_DiagnosisType_HL7_2x **Value Set OID: 2.16.840.1.114222.4.11.827**	
Value	**Description**
A	Admitting Diagnosis
F	Final Diagnosis
W	Working Diagnosis

PHVS_DischargeDisposition_HL7_2x **Value Set OID: 2.16.840.1.114222.4.11.915**	
Value	**Description**
01	Discharged to home or self-care (routine discharge).

02	Discharged/transferred to a short-term general hospital for inpatient care.
03	Discharged/transferred to skilled nursing facility (SNF) with Medicare certification.
04	Discharged/transferred to an immediate care facility (ICF)
05	Discharged/transferred to another type of institution not defined elsewhere on the code list
06	Discharged/transferred to home under care of organized home health service organization
07	Left against medical advice or discontinued care
08	Discharged/transferred to home under care of a Home IV provider
09	Admitted as an inpatient to the hospital.
30	Still Patient
40	Expired at home
41	Expired in a medical facility
42	Expired, place unknown
43	Discharged/transferred to a federal health care facility
50	Hospice at home
51	Hospice at medical facility
61	Discharged/transferred to hospital-based Medicare approved swing bed
62	Discharged/transferred to an inpatient rehabilitation facility (IRF) including rehabilitation distinct parts of a hospital
63	Discharged/transferred to a Medicare certified long term care hospital.
64	Discharged/transferred to a nursing facility certified under Medicaid, but not Medicare
65	Discharged/transferred to a psychiatric hospital or psychiatric distinct part of a hospital
66	Discharged/transferred to a Critical Access Hospital

PHVS_EthnicityGroup_CDC (from HL7 v2.5.1 and CDC) **Value Set OID: 2.16.840.1.114222.4.11.837**	
Value	**Description**
2135-2	Hispanic or Latino
2186-5	Not Hispanic or Latino

PHVS_Gender_SyndromicSurveillance (values suggested by HL7 v 2.5.1) **Value Set OID: 2.16.840.1.114222.4.11.3403**	
Value	**Description**
F	Female
M	Male
O	Other
U	Unknown

PHVS_ IdentifierType_Syndromic Surveillance (from HL7 v 2.5.1 and CDC) **Value Set OID: 2.16.840.1.114222.4.11.3405**	
Value	**Description**
AM	American Express
AN	Account Number
ANC	Account Number Creditor
AND	Account Number Debtor
ANON	Anonymous Identifier
ANT	Temporary Account Number
APRN	Advanced Practice Registered Nurse Number
BA	Bank Account Number
BC	Bank Card Number
BR	Birth Registry Number
BRN	Breed Registry Number

CC	Cost Center Number
CY	County Number
DDS	Dentist License Number
DEA	Drug Enforcement Administration Registration Number
DFN	Drug Furnishing or Prescriptive Authority Number
DI	Diner's Club Card
DL	Driver's License Number
DN	Doctor Number
DO	Osteopathic License Number
DPM	Podiatrist License Number
DR	Donor Registration Number
DS	Discover Card
EI	Employee Number
EN	Employer Number
FI	Facility ID
GI	Guarantor Internal Identifier
GL	General Ledger Number
GN	Guarantor External Identifier
HC	Health Card Number
IND	Indigenous/Aboriginal
JHN	Jurisdictional Health Number (Canada)
LI	Labor and Industries Number
LN	License Number
LR	Local Registry ID
MA	Patient Medicaid Number
MB	Member Number
MC	Patient's Medicare Number
MCD	Practitioner Medicaid Number
MCN	Microchip Number
MCR	Practitioner Medicare Number
MD	Medical License Number
MI	Military ID Number
MR	Medical Record Number
MRT	Temporary Medical Record Number
MS	MasterCard
NE	National Employer Identifier
NH	National Health Plan Identifier
NI	National Unique Individual Identifier
NII	National Insurance Organization Identifier
NIIP	National Insurance Payer Identifier
NNxxx	National Person Identifier where xxx is the ISO Table 3166-3-character Country Code
NP	Nurse Practitioner Number
NPI	National Provider Identifier
OD	Optometrist License Number
PA	Physician Assistant Number
PCN	Penitentiary/Correctional Institution Number
PE	Living Subject Enterprise Number
PEN	Pension Number
PI	Patient Internal Identifier
PN	Person Number
PNT	Temporary Living Subject Number
PPN	Passport Number
PRC	Permanent Resident Card Number
PRN	Provider Number

PT	Patient External Identifier
QA	QA Number
RI	Resource Identifier
RN	Registered Nurse Number
RPH	Pharmacist License Number
RR	Railroad Retirement Number
SL	State License
SN	Subscriber Number
SR	State Registry ID
SS	Social Security Number
TAX	Tax ID Number
TN	Treaty Number (Canada)
U	Unspecified Identifier
UPIN	Medicare/CMS Universal Physician Identification Numbers
VN	Visit Number
VS	VISA
WC	WIC Identifier
WCN	Workers' Comp Number
XX	Organization Identifier

PHVS_NameType_HL7_2x
Note: The only codes listed are those needed for this implementation guide.
Value Set OID: 2.16.840.1.114222.4.11.810

Value	Description
L	Legal Name
S	Coded Pseudo-Name to ensure anonymity
U	Unspecified

PHVS_ObservationIdentifier_SyndromicSurveillance
Value Set OID: 2.16.840.1.114222.4.11.3589

Value	Description
21612-7	Age Time Patient Reported
11289-6	Body Temperature: Temp:Enctrfrst:Patient:Qn:
8661-1	Chief Complaint:Find:Pt:Patient:Nom:Reported
44833-2	Diagnosis.Preliminary:Imp:Pt:Patient:Nom:
SS003	Facility/Visit Type
11368-8	Illness or Injury onset date and time:TmStp:Pt:Patient:Qn:
59408-5	Oxygen Saturation:MFr:PT:BldA:Qn:Pulse
SS001	Treating Facility Identifier
SS002	Treating Facility Location
54094-8	Triage note:Find:Pt:Emergencydepartment:Doc:
3141-9	Body Weight
8302-2	Body Height
39094-2	Blood Pressure Panel

PHVS_PatientClass_SyndromicSurveillance (values suggested by HL7 v 2.5.1) -
Note: The only codes listed are those needed for this implementation guide.
Value Set OID: 2.16.840.1.1114222.4.11.915

Value	Description
E	Emergency
I	Inpatient

O	Outpatient

PHVS_ProcessingID_HL7_2x **Value Set OID: 2.16.840.1.114222.4.11.1028**	
Value	**Description**
D	Debugging
P	Production
T	Training

PHVS_PulseOximetryUnit_UCUM **Value Set OID: 2.16.840.1.114222.4.11.3590**	
Value	**Description**
%	Percent

PHVS_RaceCategory_CDC (values suggested by HL7 v2.5.1 and CDC) **Value Set OID: 2.16.840.1.114222.4.11.836**	
Value	**Description**
1002-5	American Indian/Alaska Native
2028-9	Asian
2054-5	Black or African American
2076-8	Native Hawaiian or Other Pacific Islander
2106-3	White
2131-1	Other Race

PHVS_ResultStatus_HL7_2x **Value Set OID: 2.16.840.1.114222.4.11.815**	
Value	**Description**
A	Some, but not all, results available
C	Correction to Results
F	Final results; results stored and verified. Can only be changed with a corrected result.
I	No results available; specimen received, procedure incomplete
O	Order received; specimen not yet received
P	Preliminary: A verified early result is available, final results not yet obtained
R	Results stored, not yet verified
S	No results available; procedure scheduled, but not done
X	No results available; Order cancelled
Y	No order on record for this test. (Used only on queries)
Z	No record of this patient. (Used only on queries).

Table: PHVS_State_FIPS_5-2 **Coding System OID: 2.16.840.1.113883.6.92**					
FIPS Code	County Name	FIPS Code	County Name	FIPS Code	County Name
01	Alabama	20	Kansas	69	Northern Mariana Islands
02	Alaska	21	Kentucky	39	Ohio
60	America Samoa	89	Kingman Reef	40	Oklahoma
04	Arizona	22	Louisiana	41	Oregon
05	Arkansas	23	Maine	70	Palau
81	Baker Island	68	Marshall Islands	95	Palmyra Atoll
06	California	24	Maryland	42	Pennsylvania
08	Colorado	25	Massachusetts	72	Puerto Rico

09	Connecticut	26	Michigan	44	Rhode Island
10	Delaware	71	Midway Islands	45	South Carolina
11	District of Columbia	27	Minnesota	46	South Dakota
64	Federated States of Micronesia	28	Mississippi	47	Tennessee
12	Florida	29	Missouri	48	Texas
13	Georgia	30	Montana	74	US Minor Outlying Islands
66	Guam	76	Navassa Island	49	Utah
15	Hawaii	31	Nebraska	50	Vermont
84	Howland Island	32	Nevada	78	Virgin Islands of US
16	Idaho	33	New Hampshire	51	Virginia
17	Illinois	34	New Jersey	79	Wake Island
18	Indiana	35	New Mexico	53	Washington
19	Iowa	36	New York	54	West Virginia
86	Jarvis Island	37	North Carolina	55	Wisconsin
67	Johnston Atoll	38	North Dakota	56	Wyoming

PHVS_TemperatureUnit_UCUM **Value Set OID: 2.16.840.1.114222.4.11.919**	
Value	**Description**
Cel	Degree Celsius
[degF]	Degree Fahrenheit

PHVS_ValueType_HL7_2x **Value Set OID: 2.16.840.1.114222.4.11.1059**	
Value	**Description**
AD	Address
CE	Coded Entry
CF	Coded Element with Formatted Values
CK	Composite ID with Check Digit
CN	Composite ID and Name
CP	Composite Price
CX	Extended Composite ID with Check Digit
DT	Date
ED	Encapsulated Data
FT	Formatted Text
MO	Money
NM	Numeric
PN	Person Name
RP	Reference Pointer
SN	Structured Numeric
ST	String Data
TM	Time
TN	Telephone Number
TS	Time Stamp (Date & Time)
TX	Text Data (Display)
XAD	Extended Address
XCN	Extended Composite Name and Number for Persons
XON	Extended Composite Name and Number for Organizations
XPN	Extended Person Name
XTN	Extended Telecommunications Number

PHVS Tables		
Value Set	**Value Set OID**	**Value Set Name/Description**
PHVS_AdministrativeDiagnosis CDC_ICD-9CM	2.16.840.1.114222.4.11.856	ICD-9 CM Administrative Diagnosis Codes used for billing purposes, Reason for Study, DG1 Diagnosis segments Keyword: ICD-9 Vol 1 & 2.
PHVS_CauseOfDeath_ICD10_CDC	2.16.840.1.114222.4.11.3593	The list provides ICD-10 codes and associated cause of-death titles for the most detailed listing of causes of death. This list is maintained by CDC NCHS.
PHVS_Disease_CDC	2.16.840.1.114222.4.11.909	Disease or Disorder.